

**Amendments to the Claims**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1-22. (Cancelled).

23. (Original): A method, comprising:

determining occupancy of a building with a processor, wherein the building has an air treatment system with a fan;

determining operational status of the fan with the processor;

calculating an outdoor air fraction of the system with the processor;

determining validity of the outdoor air fraction with the processor;

determining outdoor air fraction status with the processor by comparing the outdoor air fraction to a required outdoor air fraction for the building;

determining current mode status with the processor by comparing the outdoor air fraction with current mode of operation of the system;

determining unit status of the system with the processor based at least on the occupancy of the building, the operational status of the fan, the validity of the outdoor air fraction, the outdoor air fraction status, and the current mode status; and

providing output based at least in part on the unit status.

24. (Original): The method of claim 23, wherein:

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said determining operational status of the fan includes receiving a fan signal from a fan sensor operatively coupled to the processor;

said determining the occupancy of the building includes determining validity of the fan signal; and

said determining the unit status is based on the validity of the fan signal.

25. (Original): The method of claim 23, wherein said calculating the outdoor air fraction includes:

measuring a return air temperature in the system with a return air temperature sensor operatively coupled to the processor;

measuring an outdoor air temperature in the system with an outdoor air temperature sensor operatively coupled to the processor;

measuring a mixed air temperature in the system with a mixed air temperature sensor operatively coupled to the processor; and

wherein the outdoor air fraction is based on the difference between the mixed air temperature and the return air temperature divided by the difference between the outdoor air temperature and the return air temperature.

26. (Original): The method of claim 25, wherein:

said determining the unit status includes validity checking the return air temperature, the mixed air temperature and the outdoor air temperature; and

the unit status is based on said validity checking.

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27. (Original): The method of claim 23, wherein:

said determining the outdoor air fraction status includes establishing that the outdoor air fraction is less than the required outdoor air fraction; and

said determining the unit status establishing the unit status as low outdoor air supply.

28. (Original): The method of claim 23, wherein said providing the output includes displaying the unit status in a status page at a remote monitoring facility.

29. (Cancelled).

30. (Original): A system, comprising:

means for determining occupancy of a building, wherein said building has an air treatment system with a fan;

means for determining operational status of said fan;

means for calculating an outdoor air fraction of said system;

means for determining validity of said outdoor air fraction;

means for determining outdoor air fraction status by comparing said outdoor air fraction to a required outdoor air fraction for said building;

means for determining current mode status by comparing said outdoor air fraction with current mode of operation of said system; and

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means for determining unit status of said system based at least on said occupancy of said building, said operational status of said fan, said validity of said outdoor air fraction, said outdoor air fraction status, and said current mode status.

31. (New) A system, comprising:

a processor operable to determine a unit status of an air treatment system for a building;

a fan sensor operatively coupled to the processor for determining an operational status of a fan in the air treatment system, wherein the processor is operable to determine occupancy of the building based on the fan sensor;

a return air sensor operatively coupled to the processor for sensing return air temperature in the air treatment system;

an outdoor air sensor operatively coupled to the processor for sensing outside air temperature;

a mixed air temperature sensor operatively coupled to the processor for sensing mixed air temperature in the air treatment system;

wherein the processor is operable to determine an outdoor air fraction based on the return air temperature, the outdoor air temperature, and the mixed air temperature, the processor being operable to determine an outdoor air fraction status by comparing the outdoor air fraction to a required outdoor air fraction for the building;

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wherein the processor is operable to determine a heating/cooling mode status of the air treatment system by comparing the outdoor air fraction with a current heating/cooling mode of the air treatment system; and

wherein the processor is operable to determine the unit status of the air treatment system based on the occupancy of the building, the operational status of the fan, the validity of the outdoor air fraction, the outdoor air fraction status, and the heating cooling mode status of the air treatment system.

32. (New) The system of claim 31, wherein the outdoor air fraction is based on the difference between the mixed air temperature and the return air temperature divided by the difference between the outdoor air temperature and the return air temperature.

33. (New) The system of claim 31, further comprising the air treatment system.

34. (New) The system of claim 33, further comprising:

wherein the air treatment system includes a controller that is operatively coupled to the processor;

wherein the air treatment system includes a supplemental heating coil for heating, a reversing control valve for switching between an air conditioning mode and a heat pump mode in the air treatment system, and a compressor;

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a heating sensor operatively coupled to the controller for sensing a heating status of the heating coil;

a reversing control valve sensor operatively coupled to the controller for sensing a reversing control valve status of the reversing control valve;

a cooling sensor operatively coupled to the controller for sensing a cooling status of the compressor;

wherein the controller is operable to send to the processor the heating status, the reversing control valve status, and the cooling status; and

wherein the processor is operable to determine the current heating/cooling mode based on the heating status, the reversing control valve status, and the cooling status.